

Indicator: General Mortality (211)

Overall mortality is a key measure of health in a population. Ranking the causes of death can provide a description of the relative burden of cause-specific mortality (Anderson and Smith, 2003).

This indicator is based on mortality data recorded in the National Vital Statistics System (NVSS) which registers virtually all deaths nationwide. The temporal coverage of the data is from 1933 to present and data are collected from all 50 States and the District of Columbia.

What the Data Show

As noted in ROE03, an increase in the number of deaths in the United States has been observed over the last few decades, reflecting the increase in the size and aging of the population. This trend continued in 2001 and 2002 where 2,416,425 and 2,443,387 deaths, respectively, were recorded, an increase compared to 1999 (2,391,399 deaths). However, the age-adjusted all cause mortality rates have declined yearly since 1980 (except in years of influenza outbreaks in 1983, 1985, 1988, 1993, and 1999) with the most recent available rate of 845.3 deaths per 100,000 people in 2002 (NCHS, 2004). Figure 211-1 provides some historical perspective on trends in the age-adjusted mortality rates between 1940 and 2000. The figure shows that age-adjusted rates were nearly twice as high in 1940 as they were in 2000.

The rank order of the leading causes of death was the same in 2001 and 2002 as reported in 1999 in ROE03. Figure 211-2 presents the leading causes of mortality in 2002. The three leading causes of death were heart disease, cancer, and stroke, accounting for about 60% of all deaths.

Indicator Limitations

- Ranking causes of deaths is a somewhat arbitrary procedure. Rankings only represent the causes of death that occur more frequently among eligible causes to be ranked. Thus, rankings of cause-specific mortality could change depending on the defined list of causes that are considered (Anderson and Smith, 2003).

Data Sources

Centers for Disease Control and Prevention (CDC), National Center for Injury Prevention and Control. WISQARS Leading Causes of Death Reports, 1999–2001.

<http://webapp.cdc.gov/sasweb/ncipc/leadcaus.html>.

CDC. WONDER Compressed Mortality 1999–2001 with ICD-10 Codes.

<http://wonder.cdc.gov/mortICD10J.html>.

National Center for Health Statistics (NCHS). 2004. Deaths Final Data 2002. National Vital Statistics Reports: Volume 53 (5). Available at: http://www.cdc.gov/nchs/data/nvsr/nvsr53/nvsr53_05.pdf.

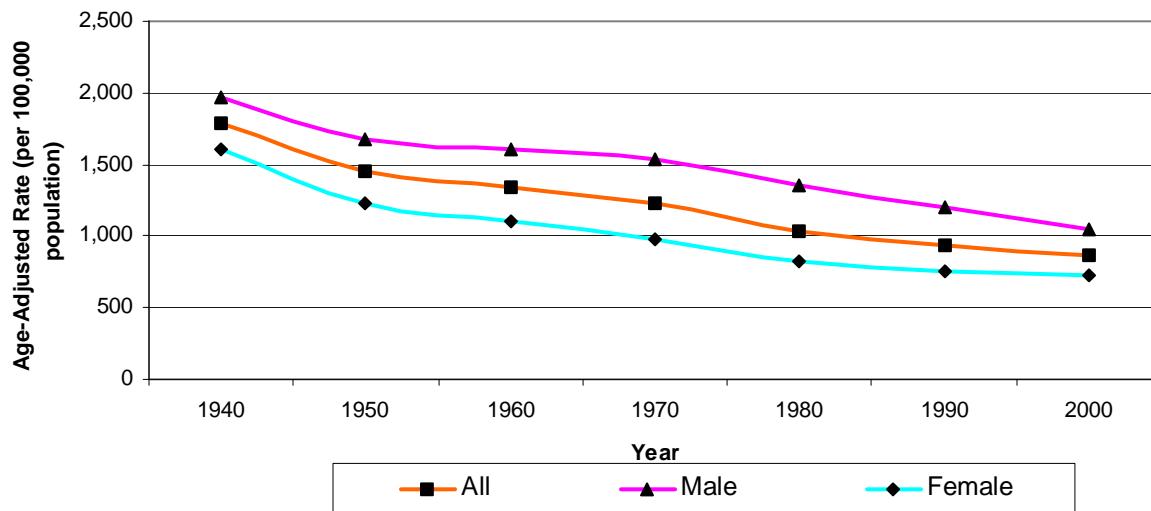
Anderson and Smith. 2003. National Vital Statistics Report (NVSR). Deaths: Leading Causes for 2001. Volume 52 (9). November 7, 2003. http://www.cdc.gov/nchs/data/nvsr/nvsr52/nvsr52_09.pdf (Alternate data source).

References

Anderson and Smith. 2003. National Vital Statistics Report (NVSR). Deaths: Leading Causes for 2001. Volume 52 (9). November 7, 2003. http://www.cdc.gov/nchs/data/nvsr/nvsr52/nvsr52_09.pdf

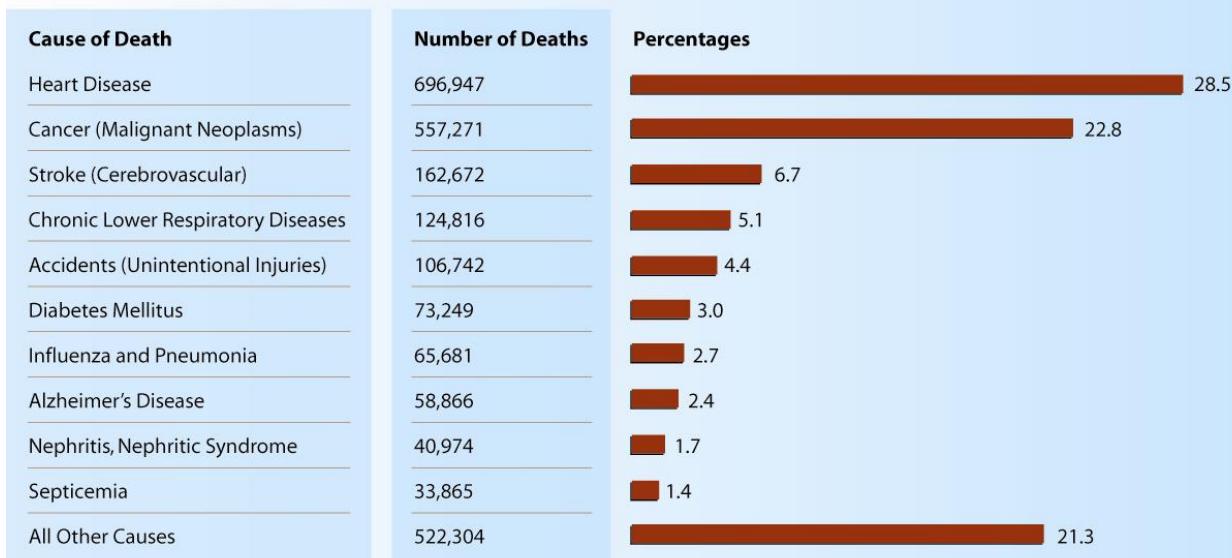
Graphics

Figure 211-1: National Trends in "All Cause" Mortality Rates Between 1940 and 2000



Source: NCHS. National Vital Statistics Reports, Vol. 53, No. 5, October 12, 2004, Table 1.
http://www.cdc.gov/nchs/data/nvsr/nvsr53/nvsr53_05.pdf

Figure 211-2. Leading Causes of Death in the United States, 2002



Source: National Center For Health Statistics (NCHS). 2004. Deaths Final Data 2002. National Vital Statistics Vol. 53 No. 5.
http://www.cdc.gov/nchs/data/nvsr53/nvsr53_05.pdf. See Table C.

R.O.E. Indicator QA/QC

Data Set Name: GENERAL MORTALITY

Indicator Number: 211 (89105)

Data Set Source: CDC, NCHS

Data Collection Date: UNKNOWN

Data Collection Frequency: 1 yr.

Data Set Description: General Mortality

Primary ROE Question: What are the trends in health status in the U.S.?

Question/Response

- T1Q1** Are the physical, chemical, or biological measurements upon which this indicator is based widely accepted as scientifically and technically valid?

The National Vital Statistics System (NVSS) is the oldest and most successful example of inter-governmental data sharing in Public Health and the shared relationships, standards, and procedures form the mechanism by which NCHS collects and disseminates the Nation's official vital statistics. The methodology for collecting vital statistics is standardized and outlined in "Model State Vital Statistics Act and Regulations" Revised April 1995, DHHS publication (PHS) 95-1115 (<http://www.cdc.gov/nchs/data/misc/mvsact92aacc.pdf>)

- T1Q2** Is the sampling design and/or monitoring plan used to collect the data over time and space based on sound scientific principles?

Yes. The National Vital Statistics System is responsible for the Nation's official vital statistics. These vital statistics are provided through State-operated registration systems. Standard forms for the collection of data and model procedures for the uniform registration of the events are developed and recommended for State use through cooperative activities of the States and the NCHS (<http://www.cdc.gov/nchs/data/dvs/DEATH11-03final-ACC.pdf>). U.S. Standard Death Certificates are revised periodically. Most state certificates conform closely in content and arrangement to the standard certificate recommended by NCHS and all certificates contain a minimum data set specified by NCHS. Demographic information on the death certificate is provided by the funeral director based on information supplied by an informant. A physician, medical examiner, or coroner provides medical certification of cause of death.

- T1Q3** Is the conceptual model used to transform these measurements into an indicator widely accepted as a scientifically sound representation of the phenomenon it indicates?

Yes. The data collected by NVSS are routinely referenced and used in epidemiological studies.

- T2Q1** To what extent is the indicator sampling design and monitoring plan appropriate for answering the relevant question in the ROE?

Virtually all deaths are registered with the NVSS nationwide. The temporal coverage of the data is from 1933 to present. Data are collected from all 50 States including the District of Columbia.

- T2Q2** To what extent does the sampling design represent sensitive populations or ecosystems?

The data set has nationwide death reporting, including sensitive populations.

T2Q3 Are there established reference points, thresholds or ranges of values for this indicator that unambiguously reflect the state of the environment?

Not applicable

T3Q1 What documentation clearly and completely describes the underlying sampling and analytical procedures used?

The sampling and quality assurance information can be found in “Model State Vital Statistics Act and Regulations” Revised April 1995, DHHS publication (PHS) 95-1115

(<http://www.cdc.gov/nchs/data/misc/mvsact92aacc.pdf>). Documentation is also available at <http://wonder.cdc.gov/wonder/help/mort.html> Data in Table HH1 extracted from: Centers for Disease Control and Prevention (CDC), National Center for Injury Prevention and Control.

WISQARS Leading Causes of Death Reports, 1999-2001.

<http://webapp.cdc.gov/sasweb/ncipc/leadcaus.html>. CDC. WONDER Compressed Mortality 1999-2001 with ICD-10 Codes. <http://wonder.cdc.gov/mortICD10J.html>. Alternate Source: Anderson and Smith. 2003. National Vital Statistics Report (NVSR). Deaths: Leading Causes for 2001. Volume 52, Number 9. November 7, 2003.

http://www.cdc.gov/nchs/data/nvsr/nvsr52/nvsr52_09.pdf National Center for Health Statistics (NCHS). 2004. Deaths Final Data 2002. National Vital Statistics vol 53 no. 5

http://www.cdc.gov/nchs/data/nvsr/nvsr53/nvsr53_05.pdf

T3Q2 Is the complete data set accessible, including metadata, data-dictionaries and embedded definitions or are there confidentiality issues that may limit accessibility to the complete data set?

The data can be accessed up to the county level through the electronic data warehouse for CDC at <http://wonder.cdc.gov>. Individual level data are not available due to confidentiality issues.

T3Q3 Are the descriptions of the study or survey design clear, complete and sufficient to enable the study or survey to be reproduced?

Yes. Virtually all deaths from the 50 states, including District of Columbia, submit mortality data to the NVSS at NCHS. The recommended certificate of death is posted at <http://www.cdc.gov/nchs/data/dvs/DEATH11-03final-ACC.pdf>. The documentation for the mortality data set is <http://wonder.cdc.gov/wonder/help/mort.html>.

T3Q4 To what extent are the procedures for quality assurance and quality control of the data documented and accessible?

See answer to T3Q1

T4Q1 Have appropriate statistical methods been used to generalize or portray data beyond the time or spatial locations where measurements were made (e.g., statistical survey inference, no generalization is possible)?

Not applicable

T4Q2 Are uncertainty measurements or estimates available for the indicator and/or the underlying data set?

Not applicable

T4Q3 Do the uncertainty and variability impact the conclusions that can be inferred from the data and the utility of the indicator?

Not applicable

T4Q4 Are there limitations, or gaps in the data that may mislead a user about fundamental trends in the indicator over space or time period for which data are available?

The mortality data on the Compressed Mortality File at <http://wonder.cdc.gov/mortSQL.html> are based on records for all deaths occurring in the fifty states and the District of Columbia. Deaths to foreign residents are excluded. Deaths to residents who died abroad are not included on this file. For purposes of comparison, it should be noted that mortality rates reported by NCHS reports differ slightly from those rates reported by CDC WONDER. NCHS uses U.S. Census Bureau population estimates for all age groups; CDC WONDER uses birth certificate data for the Under 1 Year age group and uses U.S. Census Bureau population estimates for all other age groups. The following was noted by Anderson and Smith (2003): "Ranking causes of death is to some extent an arbitrary procedure. The rank order of any particular cause of death will depend on the list of causes from which selection is made and on the rules applied in making the selection. Different cause lists and different ranking rules will typically produce different leading causes of death." The International Classification of Diseases 9th Revision (ICD 9) codes are used to specify underlying cause of death for years 1979 - 1998. Beginning in 1999, cause of death is specified with the International Classification of Diseases 10th Revision (ICD 10) codes. The two revisions differ substantially, and to prevent confusion about the significance of any specific disease code, data queries are separate.